

NIH at the Crossroads: Strategies for the Future

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NIH Budget Facing a “Perfect Storm” in 2006



- Federal & Trade Deficits
- Defense and Homeland Security needs
- Katrina
- Pandemic flu
- Post- Doubling effects
- Physical Sciences focus
- Biomedical research inflation- 3 to 5%

Competition for funds from the NIH and other sponsors, intensifying year by year, now stands at an unprecedented level, and shows no sign of abating. Never before have so many established investigators faced so much uncertainty about their longevity as active scientists. Never before have so many novices faced so many disincentives to entering or continuing a research career.

Dr. William F. Raub, NIH Associate Director for Research and Training, strategy paper, **1982**





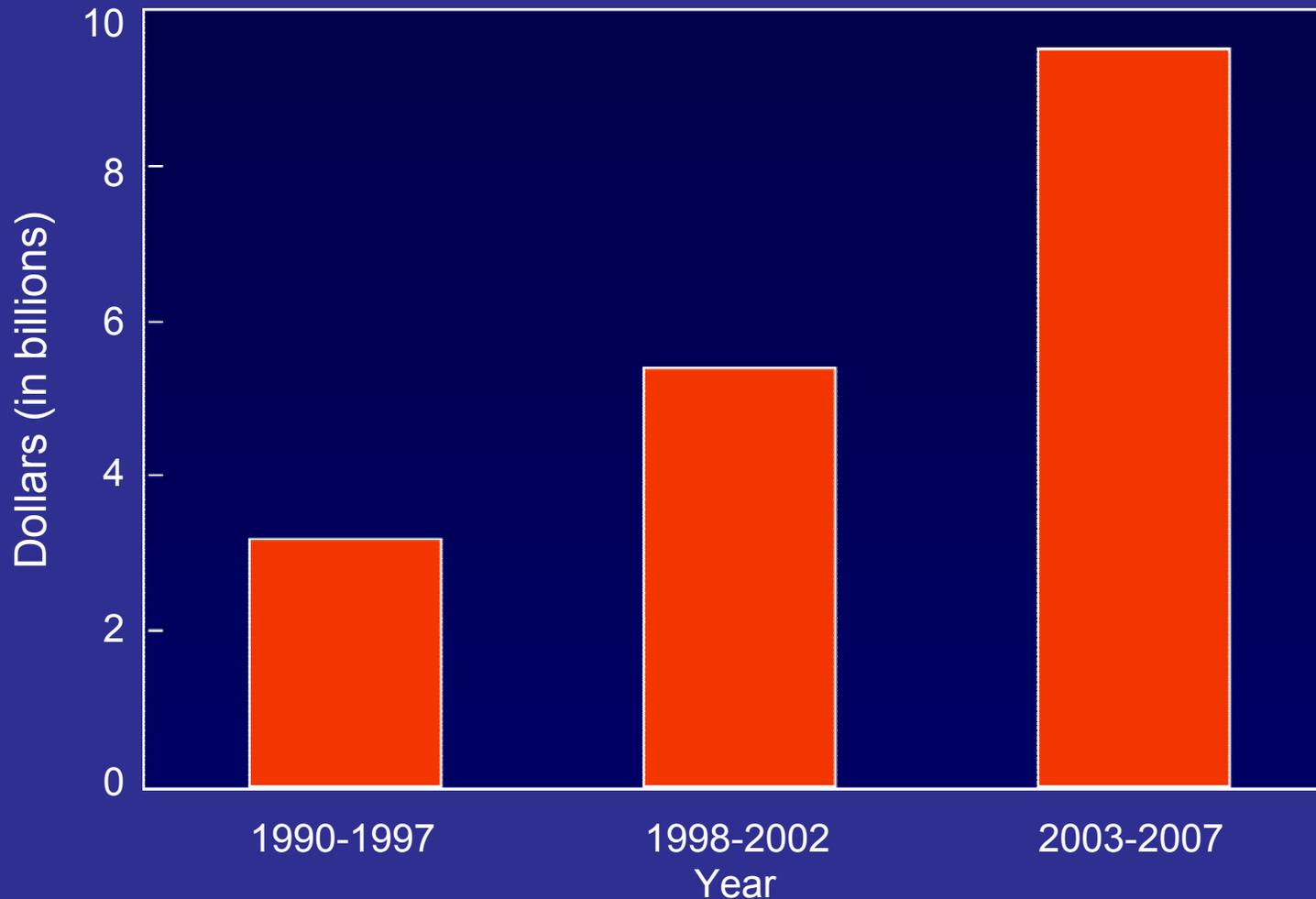
What Is Really Happening? 3 Fundamental Drivers

- Large capacity building throughout U.S. research institutions and increase in number of new faculty
- Appropriations below inflation after 2003
 - Increases of 3 % in '04, 2% in '05 and 0% in 06
 - Biomedical Inflation in 2004 was ~ 5%
- Budget cycling phenomenon





Investment in Research Facilities at U.S. Medical Schools



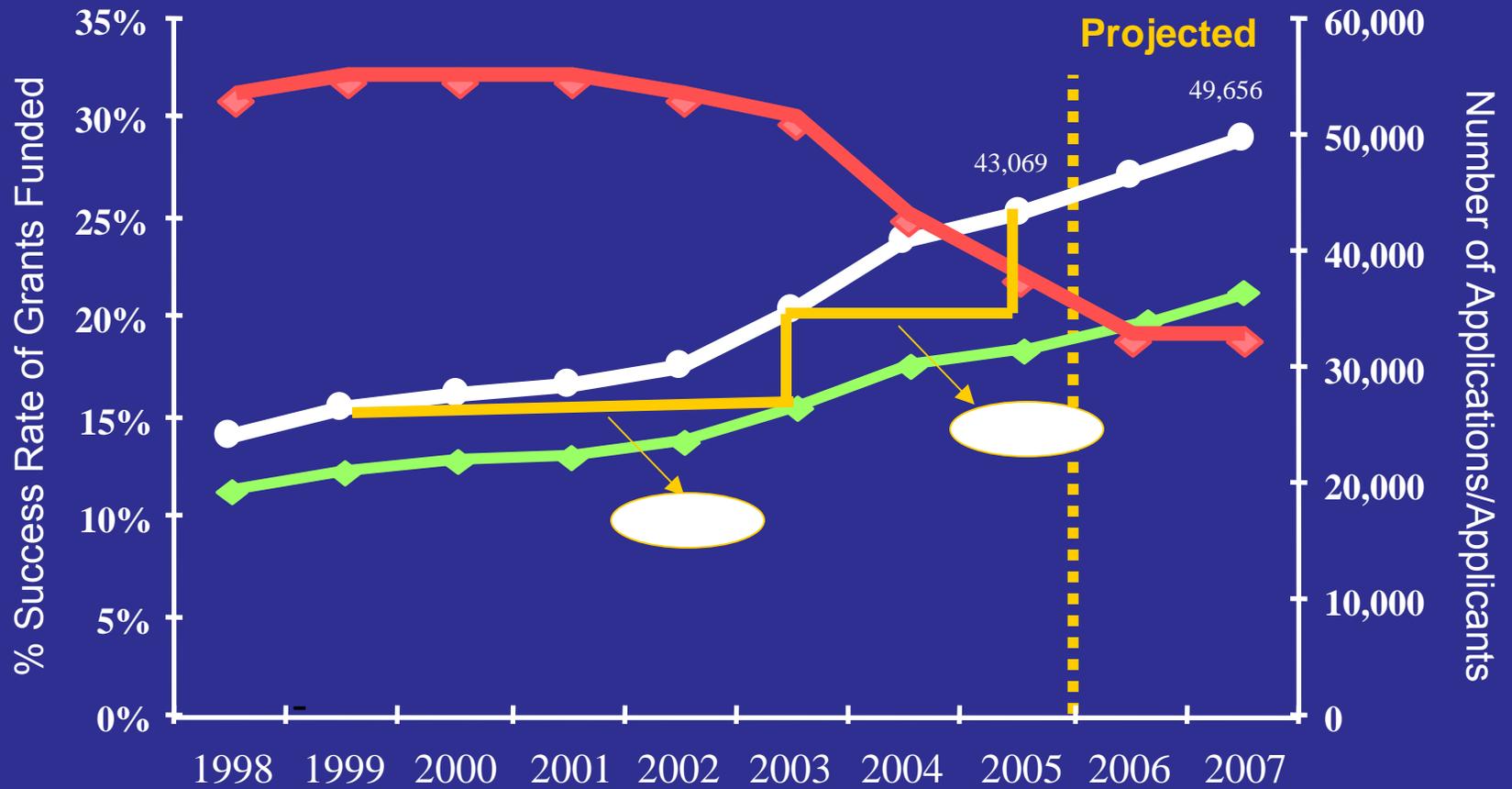
AAMC – Survey of Research Facility Investments (99 of 125 AAMC Member Schools)
* Data Based on AAMC Faculty Roster





New Grant Applications, Applicants and Success Rates

During and After Doubling Period



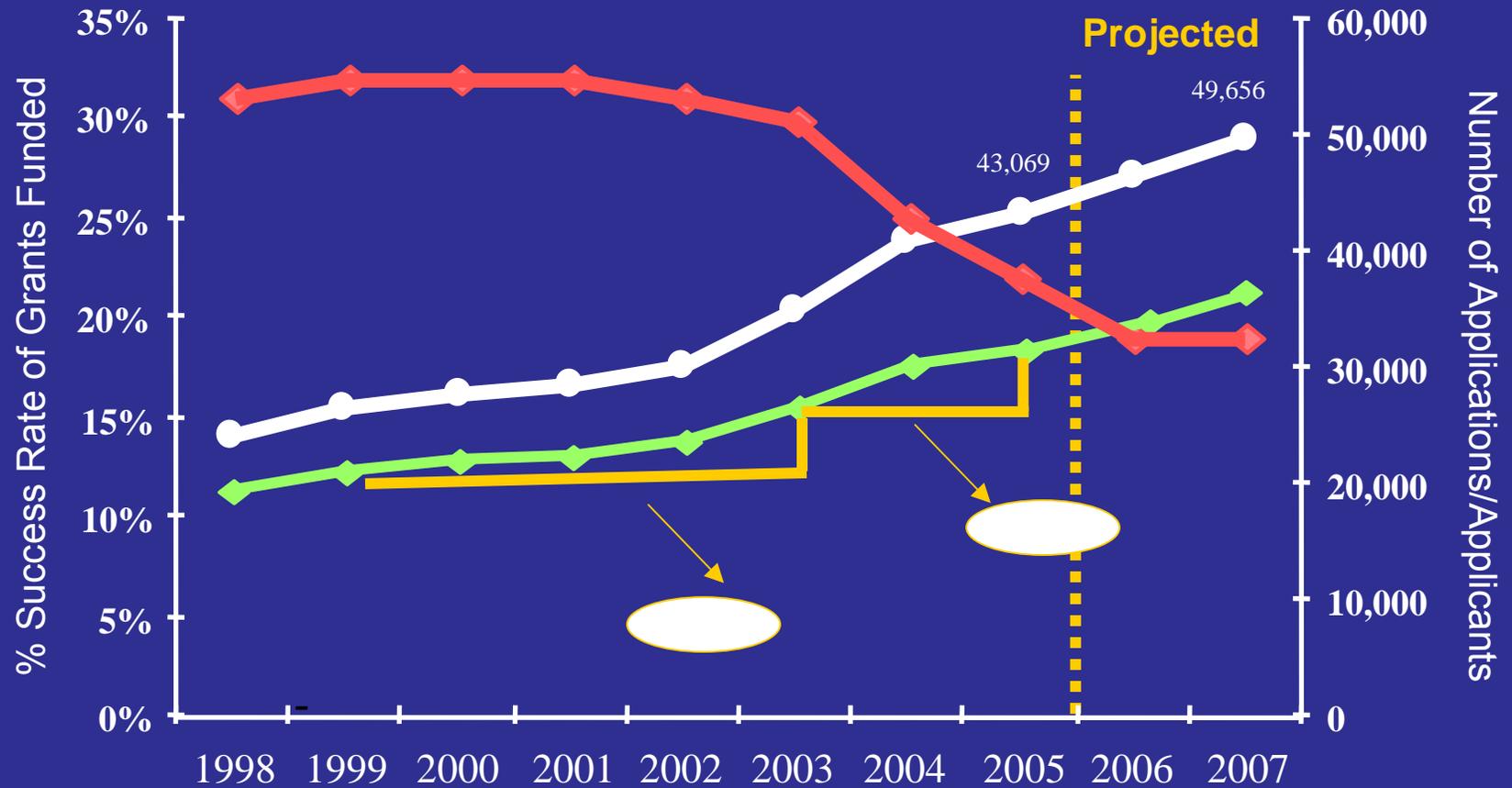
—◆— Success Rates —●— Applications —◆— Applicants





New Grant Applications, Applicants and Success Rates

During and After Doubling Period



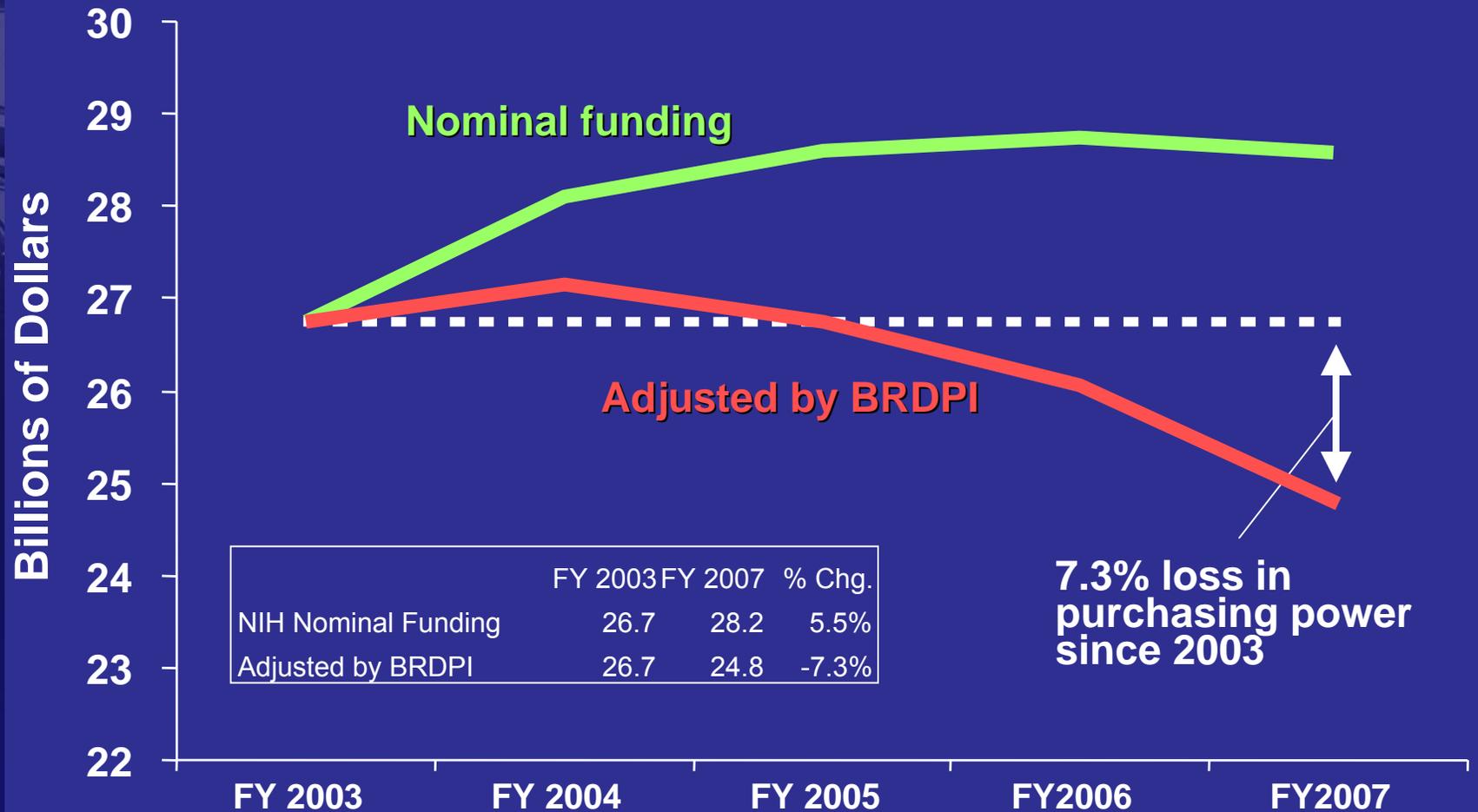
—◆— Success Rates —●— Applications —◆— Applicants





Inflation Eroded Gains in NIH Funding

Real and Nominal NIH Funding Levels Since 2003

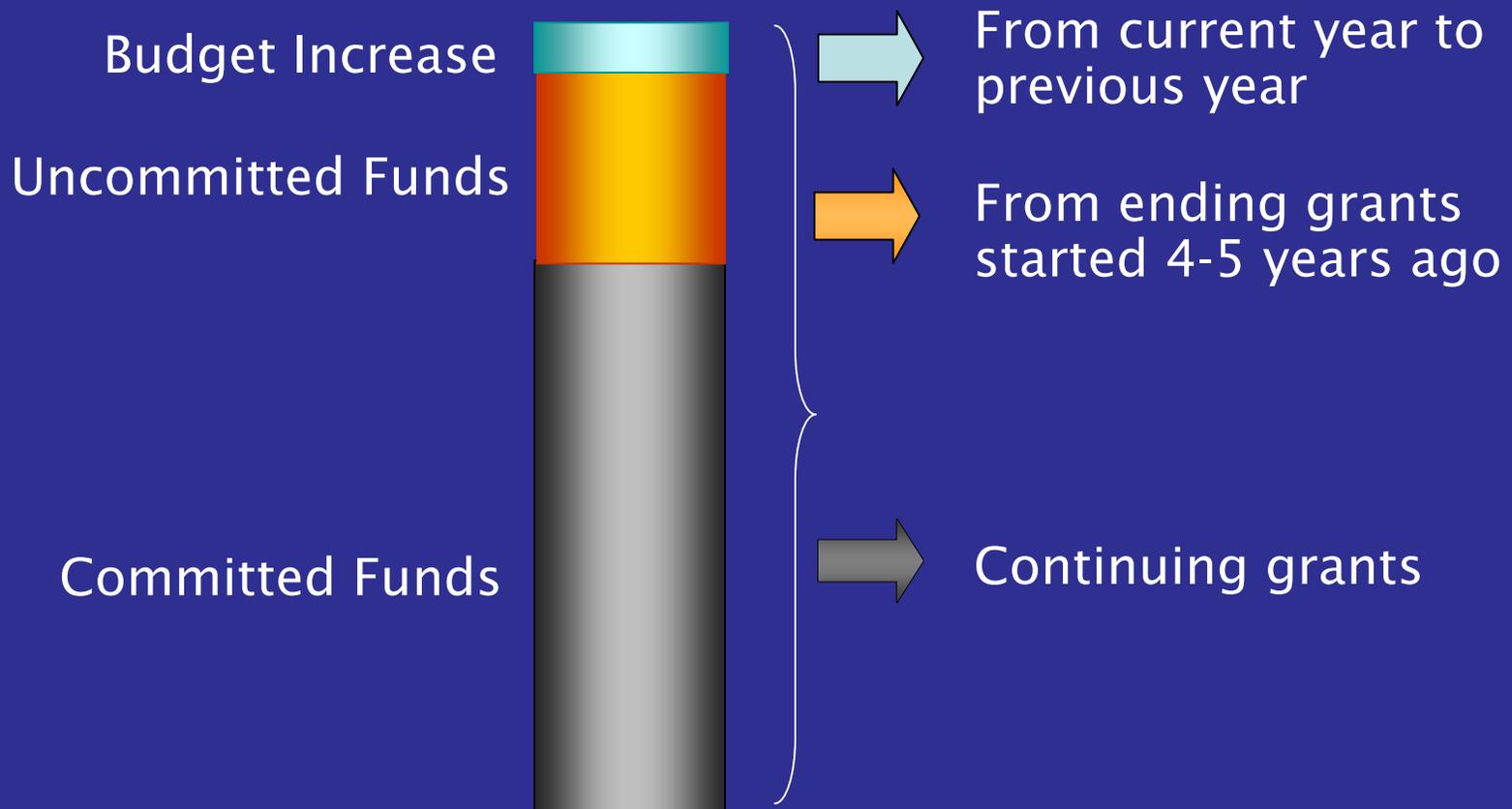


Note: BRDPI is the Biomedical Research and Development Price Index





The Budget Cycling Phenomenon: *What Funds are Available in any One Year?*

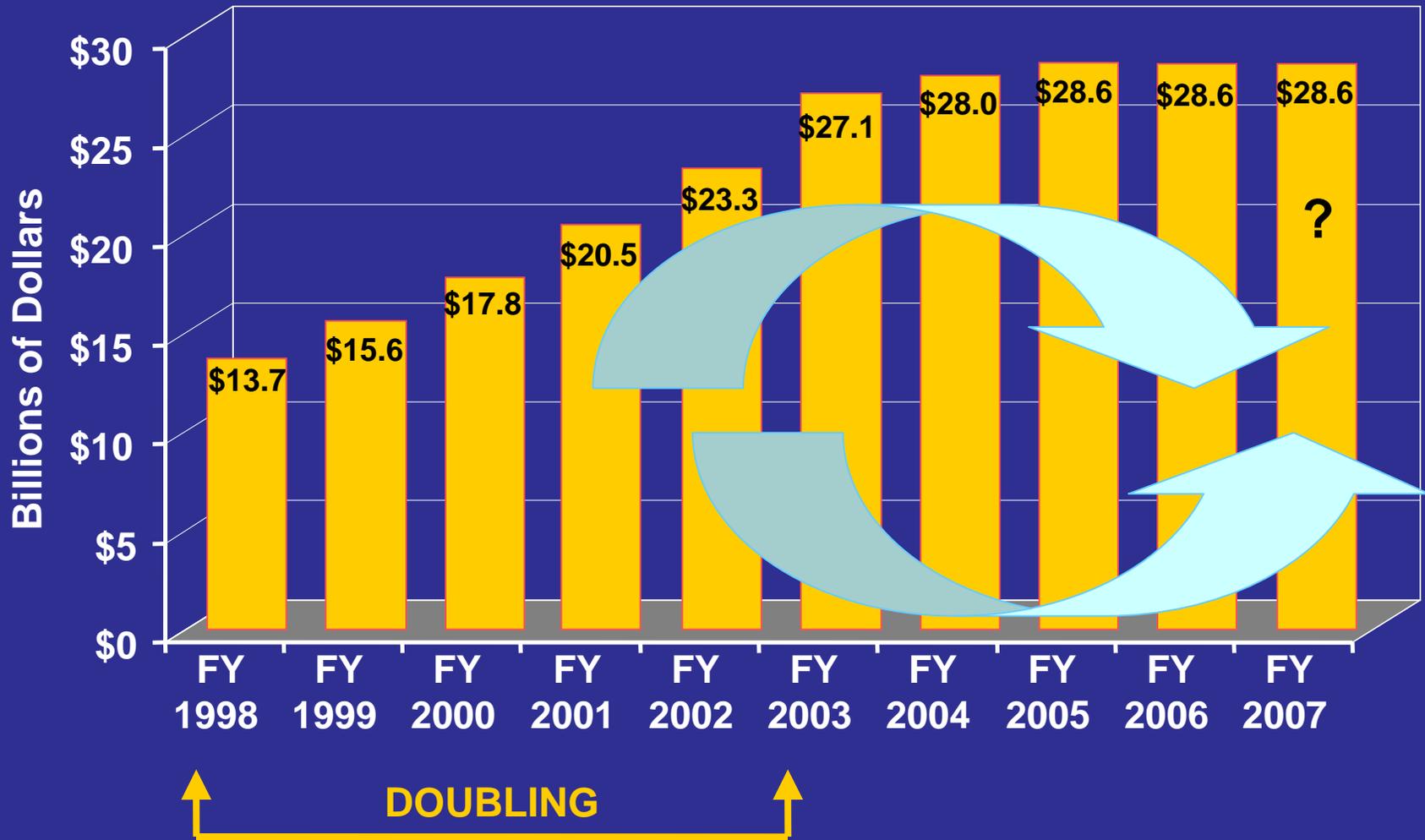


NIH Appropriations





NIH Congressional Appropriations





The Bottom Line:

Demand for Grants “Took Off” Just as NIH Budget Was “Landing!”

Applications



Budget



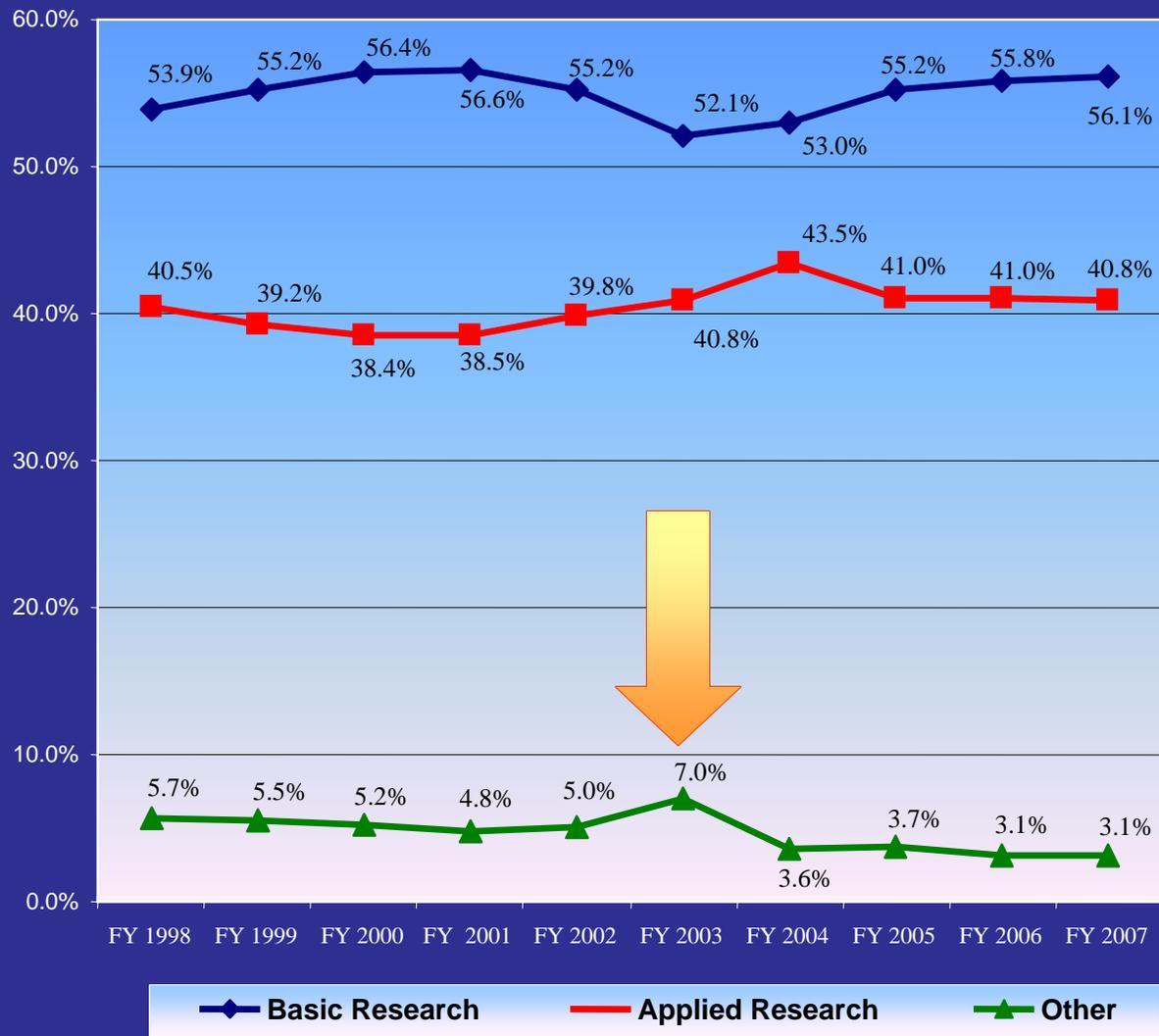
- Post doubling “boom” in applications has led to demand/supply imbalance
- NIH managed well despite small increases in 2004 (2.9%) and 2005 (2%) but flat 2006 made it difficult to adjust
- ~80% of success rate drop is due to increased demand for grants
- ~20% of drop is due to increased costs of grant and inflation effects.
- Budget cycling effect will improve demand vs supply of grants in 2007

Common Misperceptions



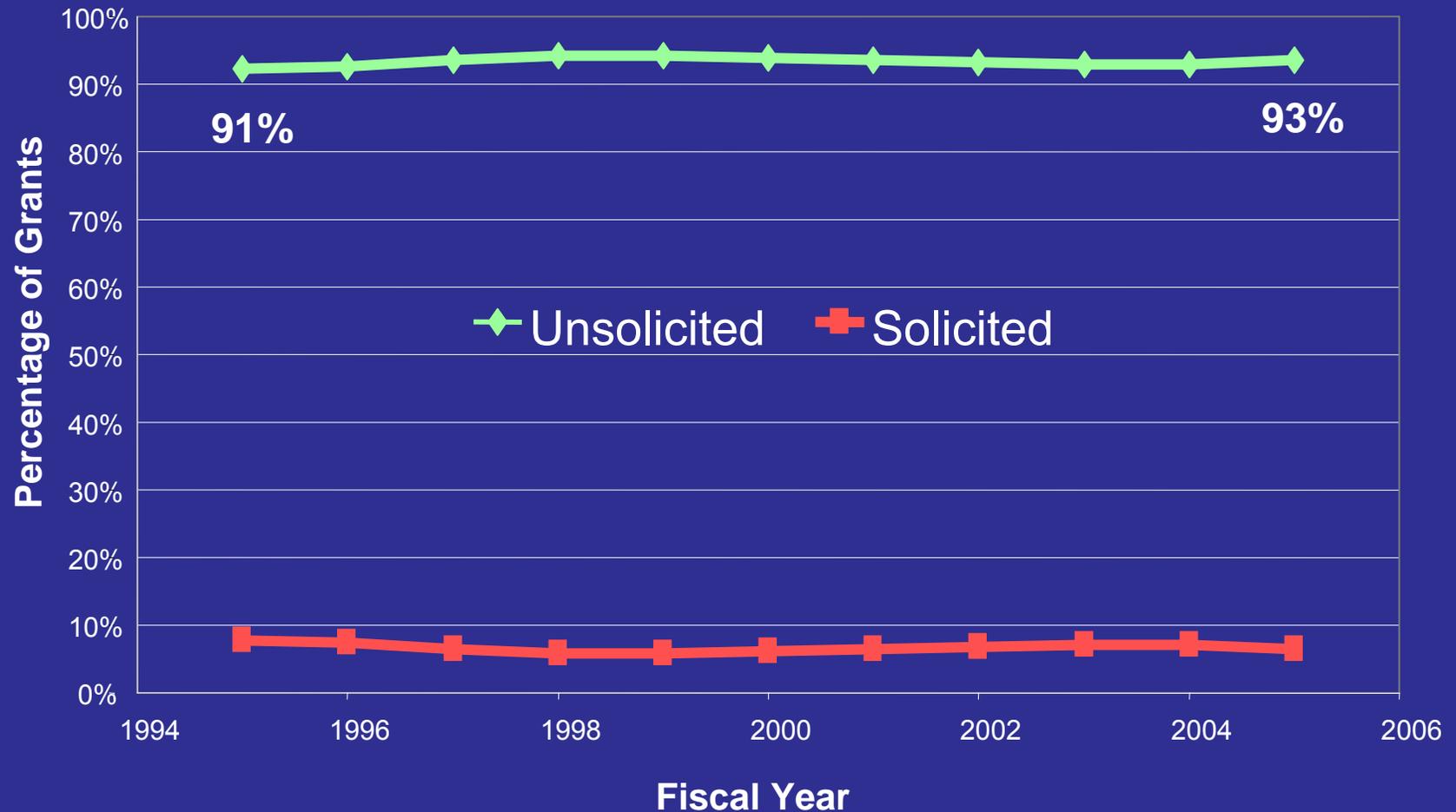


Common Misperception: NIH is Over-emphasizing Applied Research





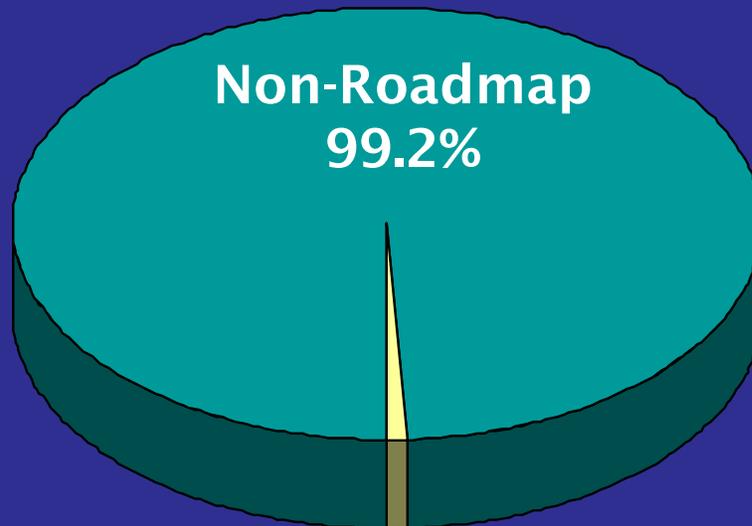
Common Misperception: NIH Shifting Towards Solicited Research with too many RFAs





Common Misperception: NIH Roadmap is Shifting Major Funds Away from Grant Pool

FY2005 Request = \$28.757B

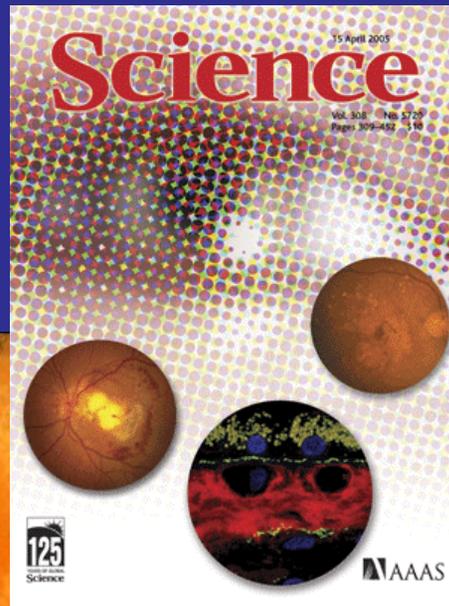


Roadmap
0.8%

- Developed to increase synergy across NIH
- Not a single initiative but over 345 individual awards in FY 2005, 133 institutions, 33 states:
 - 40% basic
 - 40% translational
 - 20% high risk



NEI and *Trans*-NIH Initiatives



- NIH Roadmap
 - NEI serves as the lead IC for Nanomedicine
- NIH Neuroscience Blueprint
- Genes and Environment Initiative
- NIH Trans-Institute Angiogenesis Research Program
- Type 1 Diabetes Initiative





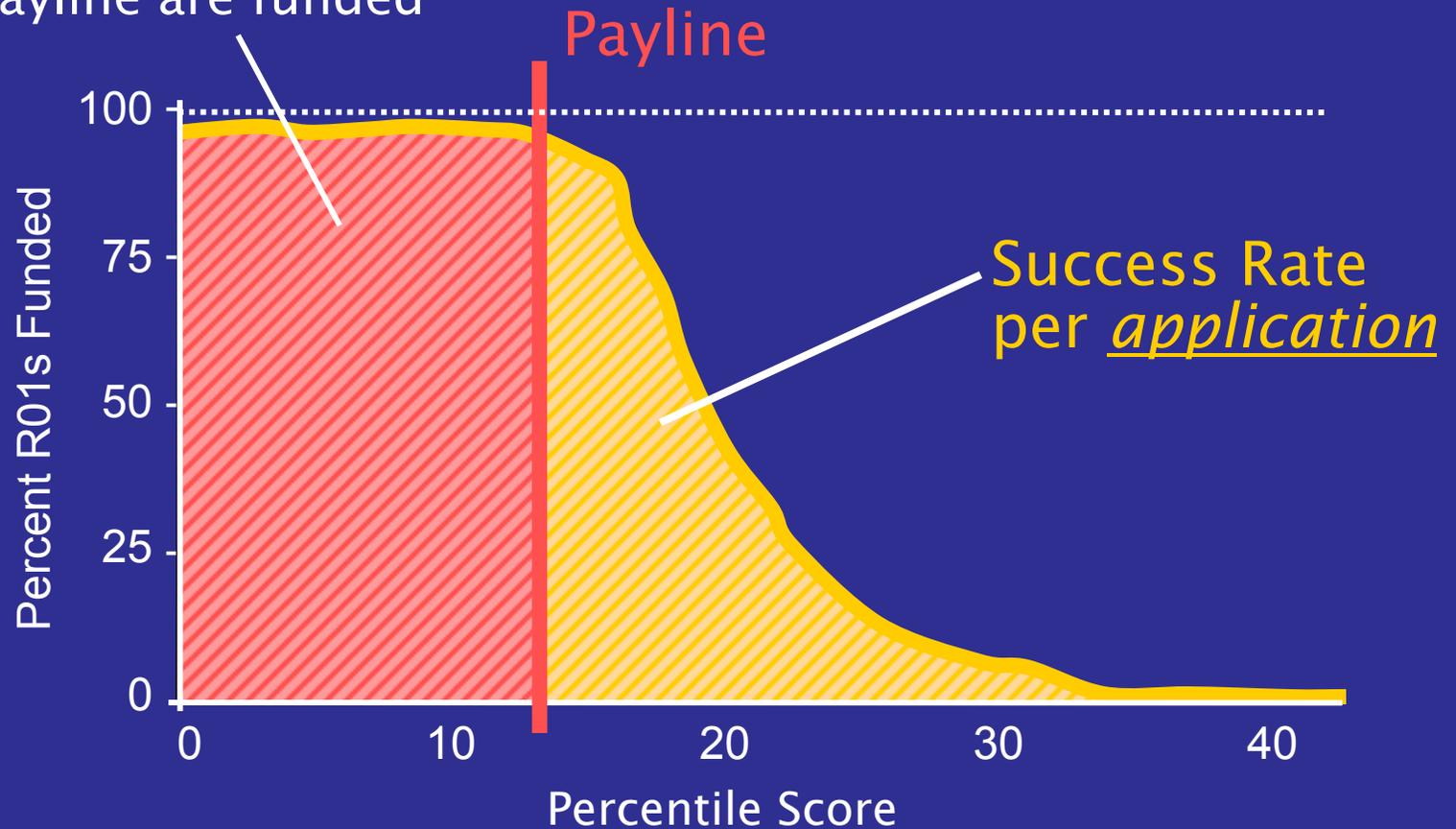
The Question on Everyone's Mind:
*What are MY chances
of being funded?*





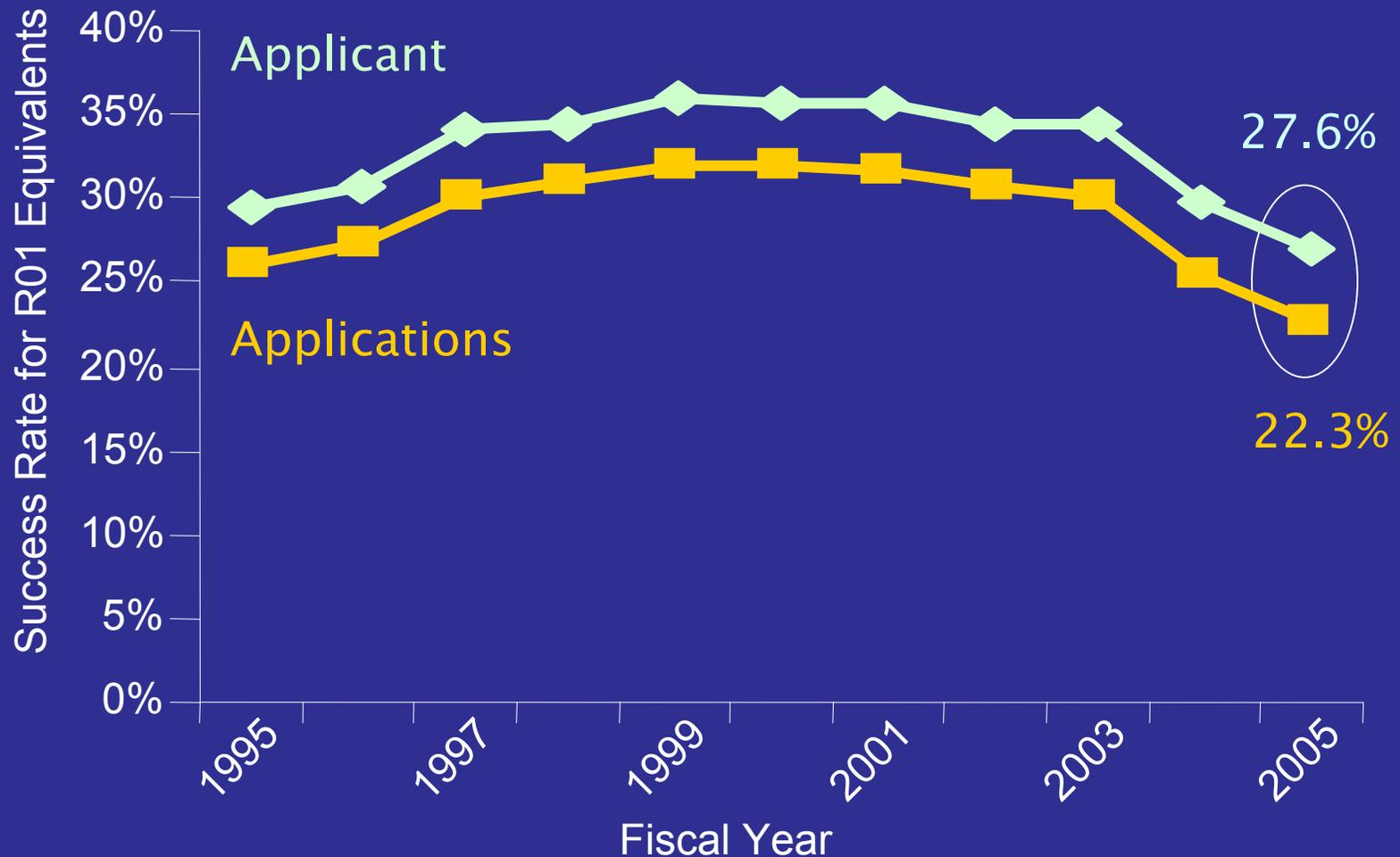
Payline Is Not Funding Cut-off Line

>99% of grants under the payline are funded





Success Rate per Application Understates Funding Rate per Applicant



Success Rate files as of May 3, 2006. Program srf_indiv_060103_rfm
Individuals are determined using the pi_profile_person_id in IMPAC II



Where Do We Go From Here?





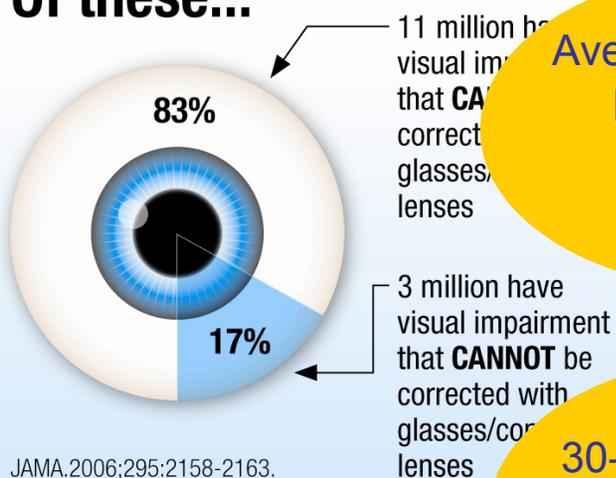
NIH Must Develop Adaptive Strategies: Key Principles

- Protect core values and mission: *Discovery and New Knowledge*
- Protect the future: New Investigators
 - Pathway to Independence Program
 - Institutes and Centers efforts to assist new investigators
- Manage the key drivers
 - Supply/demand of grants
- Proactive communications
 - A unified message about value of NIH's investment and need for sustainability
- Promote NIH's vision for the future



Biomedical Research Is Delivering: *Treatment Advances in Vision Loss*

14 million people in the U.S. are visually impaired. Of these...



Average investment per American
~\$1.20
per year

Age-related Macular Degeneration (AMD)

- Nutritional supplement reduces risk of disease progression
- Genetic variations that confer a significant risk for developing AMD have been identified

Amblyopia ("lazy eye")

30-year investment per American:
~\$36
Total

- Amblyopia is a neurologic disorder wherein the brain suppresses vision from one eye
- Sponsored clinical trials found:
 - Patching for only two hours a day was effective in reversing amblyopia
 - Remarkable new evidence of visual system neuro-plasticity: treatment was effective to at least age 17

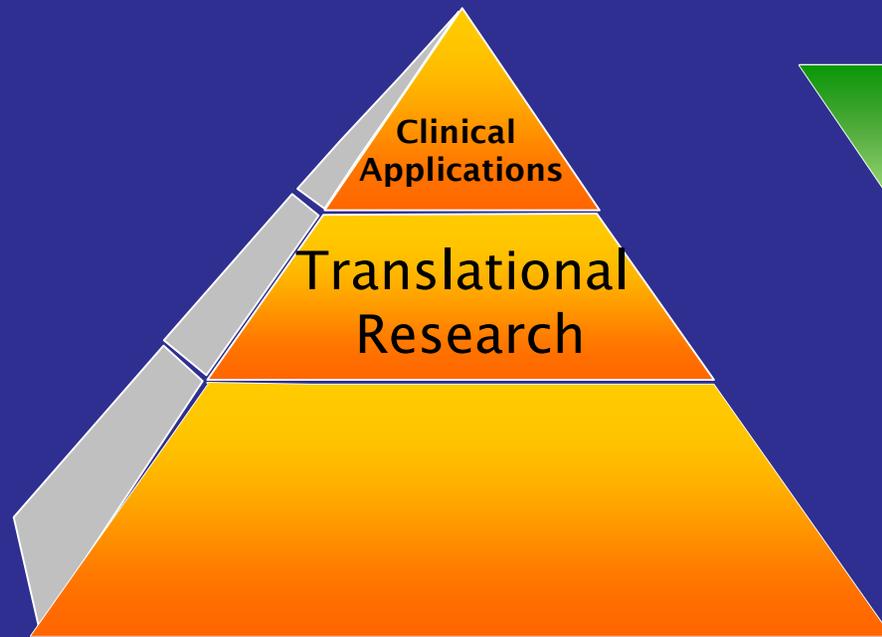


Courtesy Children's Hospital of Pittsburgh & UPMC Eye Center

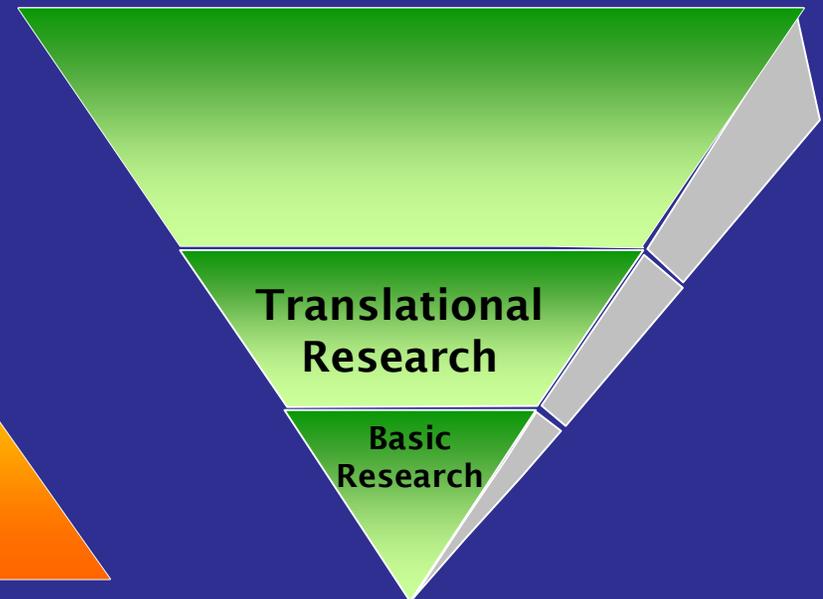




Balanced National Biomedical Research Portfolio



NIH

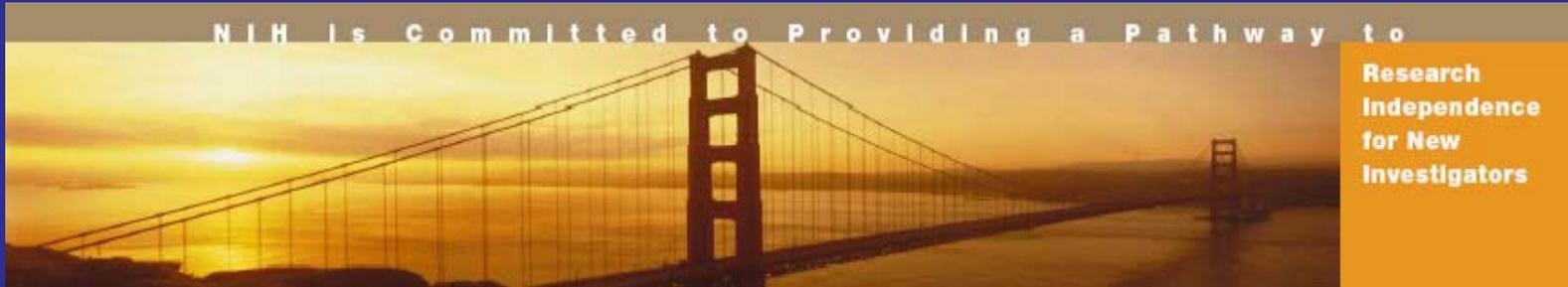


Private Sector





Protecting the Future: Pathway to Independence Award



Enhanced Support for New Investigators- PATHWAY TO INDEPENDENCE AWARD

- Five years of support consisting of two phases
- Phase I provides 1-2 years of mentored support for advanced post doctoral fellows- 90k per year
- Phase II provides up to 3 years of independent RO1 equivalent research support- 250k per year





Central Themes in NIH Communications: *A Vision for the Future*





The Future Paradigm: *Transform Medicine from Curative to Preemptive*

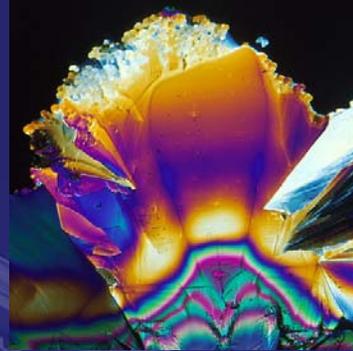


Predictive ◀ ▶ Personalized ◀ ▶ Preemptive



Participatory





NIH *Transforming medicine and health through discovery*

